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Innovation culture in higher learning institutions: A proposed framework

Siti Hajar Mohd Roffeei ^a, Yusniza Kamarulzaman ^{b*}, Farrah Dina Yusop ^c

^a*Institute of Graduate Studies, University of Malaya, 50603 Kuala Lumpur, Malaysia*

^b*Dept. Of Marketing, Faculty of Business & Accounting, University of Malaya, 50603 Kuala Lumpur, Malaysia*

^c*Dept. Of Curriculum & Instructional Technology, Faculty of Education, University of Malaya, 50603 Kuala Lumpur, Malaysia*

Abstract

This paper systematically reviews literature on the establishment of innovation culture among students in higher learning institutions. It takes a close look at the concept of innovation culture and its influence on the resulting student innovative behaviour. This paper proposes an operational framework for measuring innovation culture and its relationship with innovative behaviour specifically in a higher education context. This framework is important in facilitating institutions to design activities cultivating innovation culture among students. This will eventually lead to the production of more innovative graduates and product innovation, which will in turn be beneficial for institutions in achieving global recognition.

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1. Introduction

This study explores literature, mainly in marketing and management fields, that discusses innovation-related issues, innovativeness, innovative behaviour and innovation culture. Specifically, it tries to identify concepts usually associated with the concept of organisational culture or corporate culture of innovation culture in higher learning institutions. In general, when components of culture are used to derive the concept of innovation culture, there is a tendency to involve elements that are not quite visible but being manifested in the way people within an organisation

* Yusniza Kamarulzaman. Tel.: +603-79673915; fax: +603-79673810.

E-mail address: yusniza@um.edu.my

carry themselves. While student interactions within a campus environment can individually vary, observations of trends or patterns of behaviour can emerge when comparisons are made to determine how students from each university will behave in certain ways. This results in a need to create an appropriate innovation culture for shaping the best and most innovative student behaviour to be associated with their institutions of origin.

The purpose of this study is to develop a conceptual model for illustrating the impact of innovation culture on student innovative behaviour. It also aims to deepen our understanding of the influence of external and internal institutional environments on innovation culture and innovative behaviour of students. The challenge of this study is to incorporate this concept into the public university level, because at this level students are most often not aware of the reality of the competitive nature of real-world job demands. We also hope the framework would be beneficial in improving provision of tools for enhancing student innovativeness (spaces, resources, networking).

2. Methodology

Content analysis is a form of textual analysis typically used to categorise, compare, and contrast sets of data. The authors examined the cultural perspectives in current use for assessing student innovative behaviour and ultimately how to derive the proposed framework for best explaining innovation culture by literature review of various articles, research papers, and educational reports describing concepts of culture and innovation from various contextual viewpoints (cultural, industrial, marketing, and education). The review covered empirical research and conceptualisations reported by researchers over the time span 1980-2015. The main keywords used in data retrieval were “innovation culture”, “innovative behaviour”, “organisational culture”, “culture”, “higher educational institutions”, and combinations of these. The retrieved articles were accessible online through umlib.um.edu.my and other search engines.

The following section offers insight into the cultural perspective of the study and cultural components of innovativeness and innovation-oriented higher-learning institutions. Following that discussion, we present the proposed framework.

3. Innovation Culture

Innovation culture is a frequently-used and yet insufficiently-defined concept (Jucevičius, 2010). This is most probably due to a lack of general concepts regarding culture and effective instruments for identifying and evaluating its constructs (Cai, 2008). An innovative culture is one that supports the creation and implementation of new ideas. According to Ahmed (1998), culture is the primary determinant of innovation. In total agreement with Kuh and Whitt (1988), Ahmed emphasises that culture must match its organisational context. Culture is *‘the pattern of arrangement or behaviour adopted by a group of people or an organisation as the accepted way of solving problems’*. Because learning and teaching activities and academic services in universities/colleges are perishable and intangible, effectiveness of interactions among academics, management, and students who participate in the delivery process is closely in resemblance with services innovation.

Culture in educational institutions (Kuh and Whitt, 1988) is a *‘persistent pattern of norms, values, practices, beliefs, and assumptions that shape the behaviour of individuals and groups in a college or university and provide a frame of reference within which to interpret the meaning of events and actions on and off the campus’*. Innovation and innovativeness viewed from a cultural perspective are more concerned with the characteristics of the institutions through which student tendencies to act or behave in certain ways is a result of their interactions with learning and various other social activities in campus. A university’s historical legacy, core faculties, academic programmes, social environment, cultural artefacts (architecture, customs, stories, language etc.), and charismatic individual actors (academic staffs, administrators, alumni) make up the institution’s culture.

Bellamy (2010) suggests that the most appropriate framework for analysing such institutions is through the concept of workplace or organisational culture (OC). In a multiracial country, cultural values and beliefs (as in the Malaysian context) might not be uniform or shared by all members; nevertheless, a form of mixed culture could be practised without much thinking, and perhaps not even realised by the members of the institutions themselves. Employers value soft skills, such as the ability to think critically and creatively and to communicate and work independently, as a main

factor when hiring entry-level graduates (New Straits Time, 28 June 2014). The essence of culture with respect to cultivating the innovativeness or innovative behaviour so much in demand by these employers is especially crucial now, a time when the majority of public universities are becoming less dependent on government funding (The Star, 28 October 2015). This situation calls for institutions to become more competitive in trying to keep their programmes both attractive and affordable for current and future students. Students, on the other hand, must compete for the limited number of available scholarships while facing economic uncertainty. This affects their future employment as well as the possibility or affordability of pursuing knowledge in public universities. As Bellamy (2010) puts it, culture can be used by industrial management as a mechanism for control in bringing out the desired behaviour (and skills) in students, their future employees.

Innovation is seen as learnable skill via which different students can manifest different styles in creating opportunities by being open in experimenting with new concepts, taking risks, and collaborating with like-minded students or in teams so that values and behaviours can be aligned to bring out positive individual and collective performance and enhanced work attitudes. Culture is therefore often about what students think or/and believe is right and important, and is crucial in determining how work/assignments/projects should be done in terms of communication and execution of work, values, and practices of the institution as a whole. Being resourceful, taking initiative without instruction, having the fortitude to make decisions and take responsibility, creating an environment that supports innovation and innovativeness, working as a team, and many other qualities, can make or break an innovation culture. A positive innovation culture tolerates mistakes and failures while it strives to learn from mistakes to improve and progress continuously, keeping up with its goals and its future targets.

Culture based on shared values and beliefs holds institutions together through a sense of identity, facilitates commitment to the institution and peer group, enhances the social system, and provides guidance with respect to behaviour (Kuh and Whitt, 1988). Values are general social principles and standards, while norms are expectations regarding behaviour (Homburg and Pflesser, 2000) that provide meaning and standards through which people assess the rightness or wrongness of behaviour (Hogan and Coote, 2014). Artefacts include stories, rituals, and language created by institutions with strong symbolic meaning observable in behaviour, i.e. institutional behavioural patterns (Homburg and Pflesser, 2000).

Based on a report by Kuh and Whitt (1998), we can conceptualise the shared values and norms embedded in an innovation-oriented institutional culture, one in which the framework includes the external environment surrounding a university, the institution itself, elements (artefacts) of culture within the institution, and individual actors and roles (university students).

3.1. External environment of innovation culture

In a university, there are expectations of having common goals related to a shared vision and common direction that eliminate mixed messages and build concern and pride for the institution (Ahmed, Loh and Zairi, 1999). An enlightened institution sets challenging but reasonable goals, builds its own concerns and pride, values success, and strives for the highest standards of performance. Students become aware of these motives as the institution encourages them to excel. For example, a research university should play an active role in exploration of new research ideas, investigation of innovative methods, and participation in intellectual initiatives while continuously exploring and expanding cutting-edge knowledge. Such expectations create motivation for students to find creative solutions in their daily learning and social interactions, to create psychological ownership of goals, to enhance feelings of self-efficacy, and to improve innovative behaviour (Hogan and Coote, 2014). In the same context, supervisors' expectations are beneficial in shaping the behaviour of their students that subsequently motivates them to become proactive and self-empowered (Scott and Bruce, 1994).

Institutions that value open internal communications probably have greater access to communication channels, accessibility to information (Yahyagil, 2004), and availability of diverse knowledge (learning), minimizing restrictions on information exchange both within and outside the environment (Homburg and Pflesser, 2000). Such communication also determines the ways knowledge and information is gathered, its interpretations, its evaluation, and its sharing practices (Calantone, Cavusgil and Zhao, 2002). Thus, as information flows within an institution, its academic staffs, including management (that supports learning activities) and students should be able to act on

whatever goals the university may have, (Ahmed, Loh and Zairi, 1999). With strong staff and student participation in information sharing, and support from online and offline communication media, a healthy motivation level can be maintained if not optimised. Establishment of goals and motivation, combined with good internal communication, creates a positive external institutional environment.

H1: A positive external institutional environment will lead to a positive innovation culture.

H2: A positive external institutional environment will lead to positive innovative behaviour in students

3.2. Internal environment of innovation culture

Climate is defined as '*individual cognitive representations of the organisational setting expressed in terms that reflect psychologically meaningful interpretations of the situation*' (Scott and Bruce, 1994, James, Hater, Gent, and Bruni, 1978). Infrastructure deals with availability of physical arrangements (Yahyagil, 2004) or internal environment, often referred to as a 'climate' of culture (Fellows and Liu, 2013). Such arrangements include the campus settings and open and accessible spaces for learning activities that may also include buildings, libraries, amenities, and grounds for innovation-related activities. Scott and Bruce mention that people tend to respond to representations of environment rather than to the environment itself (James and Sells, 1981), so the presence of such functional buildings and spaces indirectly influence the need and intentions of students to use them as the means for solving learning problems and holding social events or other campus activities.

Outstanding achievements such as research publications or creative ideas generated by either students or staff must not be taken for granted. Rewards and recognition most often reflect values and appreciation by the institution with respect to such accomplishments (Hogan and Coote, 2014; Scott and Bruce, 1994) by valuing ideas and implementing or at least considering implementing suggestions (Ahmed, Loh and Zairi, 1999). Monetary rewards or tokens can be especially essential in catalysing correct behaviour, as demonstrated by the data collection/survey questionnaire activities. Participants/respondents often are more excited with respect to answer a survey when offered tokens of appreciation in exchange for their participation and time.

Another aspect of an internal environment is the nature of work, i.e., the challenges to or ease of working within a campus (Yahyagil, 2004). This could be related to the layout of the campus (such as the locations of the main library and faculty offices, availability of public parking and public transportation, and access to computer facilities or laboratories), the availability of assistance (both peer and lecturers), and information resources (online and offline). Providing an easy ambience of learning, doing, and finishing assignments/projects directly influences positive behaviour in students.

Other than the nature of work, establishing a spirit of teamwork emphasises on integration among students. According to Ahmed, Loh, and Zairi (1999), work group structure promotes integration and transfer of skills, training, and establishment of social support for divergent thinking within the group. Integration achieved through cooperation, coordination, and conflict resolution processes influences success rate (Hogan and Coote, 2014) and subsequently induces appropriate supportive and innovative behaviour. Scott and Bruce (1994) predict that a significant amount of team-member exchanges would positively relate to innovative behaviour because they provide extra resources, especially with respect to obtaining fresh ideas and feedback.

In a campus setting, peer support is a system for giving and receiving help, founded on key principles of respect, shared responsibility, and mutual agreement as to what is helpful. Supportive and innovative behaviour particularly emphasises the availability of lecturer and peer support (Yahyagil, 2004), especially when conducting a research study, an experiment, or a project that requires time, pro-activeness, determination, and patience for successful completion. Having helpful teachers, supervisors, mentors, and teammates, helps support on-time graduation. This assumption is supported by leader-member exchange (LMX) theory that suggests innovativeness might affect the relationship between a supervisor and a subordinate (a student in this context) (Scott and Bruce, 1994).

A warm ambience between students and lecturers, also called an interpersonal relationship (Yahyagil, 2004), is a strong, deep, or close association or acquaintance either between two or more students or with other people; its duration may vary widely. Such an association may be due to inference, regular studying interactions, or some other type of on-campus social commitment. Good interpersonal relations support and encourage motivation, teamwork, and innovative behaviour, so presence of adequate infrastructure, provision of rewards and recognition, good work

nature, high teamwork spirit, availability of support from friends and lecturers, and warm interpersonal relations between members, help in establishing a positive internal institutional environment.

H3: A positive internal institutional environment will lead to a positive innovation culture.

H4: a positive internal institutional environment will lead to positive innovative student behaviour.

3.3. Institutional culture of innovation

This section is mostly about cultural artefacts, the most visible and easily observed institutional aspects. The manner of telling the institutional story, especially when addressing significant and influential events that significantly affect attitudes and behaviours of the community, acts as a symbol of that institution (Hogan and Coote, 2014). In a university, this should produce a positive influence on students as they feel motivated and inspired to follow paths of previous ‘heroes’ (Alm and Jönsson, 2014). Stories might include, for example, information about outstanding accomplishments of past alumni, charismatic chancellors and vice chancellors, outstanding academic staff track records, and prolific research findings, innovations, and achievements.

University rituals, including convocation and graduation ceremonies, welcoming and initiating new students, and society activities recognise the importance of rewarding and acknowledging desired student behaviours. They help create, maintain, and invent patterns of collective action (as a result of interaction through these rituals) and social structure (Kuh and Whitt, 1988), that in turn will encourage others to also adopt these behaviours (Hogan and Coote, 2014).

Such rituals depend on a system of language to communicate important ideas and feelings (Kuh and Whitt, 1988). The use of appropriate language is thought to be highly influential on students as they observe how others speak and otherwise perform. This is especially true with respect to how they unconsciously learn by example. The ways that people of certain standing within the university behave and act sends a signal with respect to how students themselves will decide to behave (Hogan and Coote, 2014), so how students react towards stories, rituals, and supporting language, the components of a culture of innovation, affects their subsequent innovative behaviour.

H5: A positive innovation culture will lead to positive innovative behaviour in students.

3.4. Innovative behaviour

Section headings should be left justified, bold, with the first letter capitalized and numbered consecutively, starting with the Introduction. Sub-section headings should be in capital and lower-case italic letters, numbered 1.1, 1.2, etc, and left justified, with second and subsequent lines indented. All headings should have a minimum of three text lines after them before a page or column break. Ensure the text area is not blank except for the last page.

Innovative behaviour in people is likely to manifest itself in response to environments in which institutions practise innovation-oriented culture. Management of attention is a central problem in management of innovation (Scott and Bruce, 1994). This is because, as people gradually adapt to their surroundings, they may eventually begin to lose necessary driving energy. Innovativeness must therefore be nurtured if it is to continuously prosper. This section describes characteristics of innovation that should be embodied in students at higher learning institutions.

Curiosity is an eagerness to know or learn something different, while creativity relates to having or showing inventiveness and being visionary and insightful (Dawson, Tan, and McWilliam, 2011). Interestingly, Scott and Bruce (1994) find that an intuitive problem-solving style would positively affect innovative behaviour by creating tendencies to process information from different perspectives and angles, thus generating novel solutions to problems.

Novelty seeking on the other hand is reflected by openness to new ideas and changes in routines (Yahyagil, 2004). Domain-relevant skills (expertise, technical skills, talent) are important for learning and improvement. Individuals who uphold ideals and beliefs associated with the institution contribute to increased problem analysis and solutions, initiation, and adoption of technical innovations, and may eventually impact innovative behaviour (Hogan and Coote, 2014; Ahmed, Loh and Zairi, 1999; Scott and Bruce, 1994). Therefore, willingness to change and adopt new ways of doing things is a requirement for innovativeness.

Flexibility refers to willingness to change or compromise, or adapting to changes in the environment. This includes approaches to solving problems (Hogan and Coote, 2014). An alternative to the intuitive problem-solving style is systematic problem solving, where associative thinking revolves around routines, habit, or rationale. Such problem solvers may be more likely to have the ability to do things better instead of doing them differently (Scott and Bruce, 1994). This might somewhat contribute to innovative behaviour.

Greater autonomy and decision-making responsibility allows freedom to act (Dobni, 2008; Yahyagil, 2004). Autonomy refers to freedom from external control or independence. In LMX theory, understandings that follow a role development process over time encourage mature interactions between students and supervisors characterised by trust, mutual likes, and respect. This in turn allows students the broader decision-making roles essential to innovative behaviour (Scott and Bruce, 1994).

Flexibility and greater autonomy in turn encourage students to be pro-active and take initiative in the belief that they can have a real impact on the work/project management, and so ultimately increase their sense of ownership (Hogan and Coote, 2014; Ahmed, Loh and Zairi, 1999). Willingness to initiate actions, come up with plans, and take responsibility, can produce some form of empowerment, resulting in trust and support from friends and supervisors alike.

Empowerment is responsiveness to change and new ideas. Positive attitudes toward change indicate a future orientation where the past is let go and there is willingness to focus more on future short and long-term goals (Ahmed, Loh and Zairi, 1999). This drives a desire to develop, improve, and innovate. Effective time management, networking, and rationale will help develop a sense of consistency, persistency, determination, commitment, pride, and healthy self-esteem (Janiūnaitė, Cibulskas, Kriaučionienė, Almonaitienė, and Tumėnienė, 2004).

Openness to change and new ideas will further develop tolerance for ambiguities, uncertainties, and failure. This can be seen in the way a student handles mistakes, failure, or conflict (Denison, Haaland, and Goelzer, 2003) in the presence of experimentation. This attitude may affect creative streaks in individuals (Ahmed, Loh and Zairi, 1999).

Aside from having relative 'power' and tolerance for error, students also, need freedom to take risks, play with ideas, and expand their range of meaningful and calculated risks in order to experiment and challenge the status quo without fear of negative consequences (Hogan and Coote, 2014; Ahmed, Loh and Zairi, 1999; Scott and Bruce, 1994). Lynch, Walsh, and Harrington (2010) state that innovativeness is strongly characterised by risk and perceptions of risk as reflected in risk-taking behaviour. Hence, willingness to take risks is essential for innovation to occur. Considering the above characteristics of innovativeness and innovation culture, we propose a conceptual framework of innovation culture in higher learning institutions in Malaysia, one based on a model developed by Scott and Bruce (1994).

The framework (Figure 1) consists of four dimensions: the external and internal environments of the university, the innovation culture of the university, and the innovative behaviour of the students, as suggested by Kuh and Whitt (1988). Together, establishing positive external environment and internal environments will engender good reaction towards the elements of innovation culture, in turn producing a positive influence on students' innovative behaviour.

4. Conclusion

The study focuses on using innovation culture as a mechanism for explaining and understanding university culture, environment, and members' approaches to doing things within an institution, and the influence of these factors on students' innovative behaviour. In a natural work context, studying innovative behaviour is a bit complicated because the criterion is rather difficult to validate (Scott and Bruce, 1994). In environments of uncertainties, innovation and innovativeness are a requirement of every job description. With the right innovation culture and behaviour, these students will boost their energy, be motivated, and drive to a successful future.

In the future, extended studies could focus on other types of institutions such as private universities, university colleges, or Malaysian campuses of foreign universities. The same study could also include students at other academic levels such as post-graduates and pre-university students. Those results would be interesting for comparison purposes. Institutions would also benefit from inducing a positive innovation culture and innovative behaviour in students through enhanced design of university programmes and campus activities.

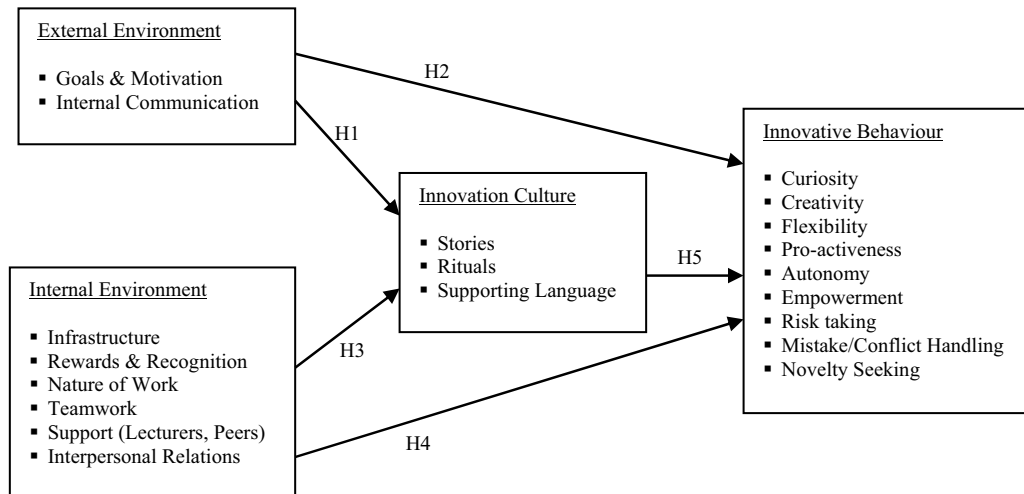


Fig 1. The proposed framework for Innovation Culture

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